

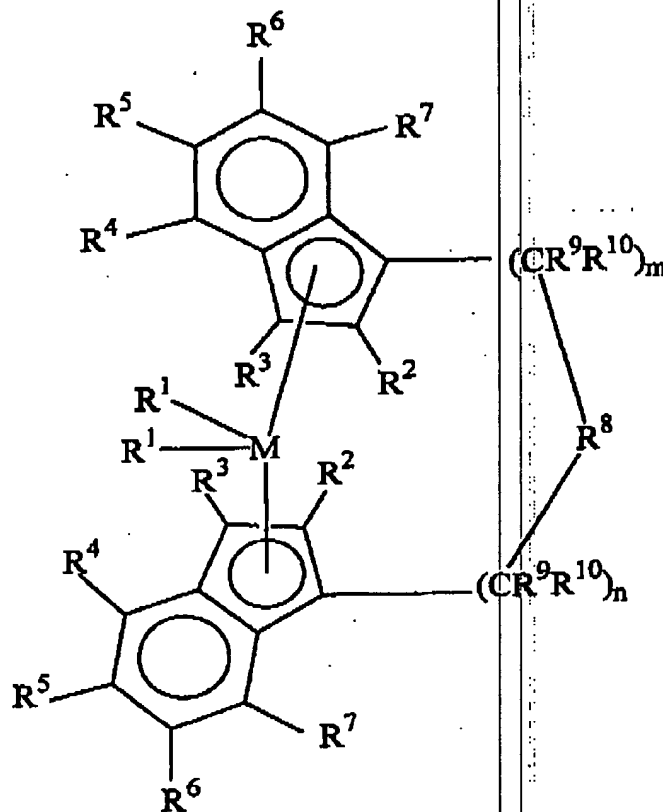
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Listing of the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) A process for preparing a propylene copolymer, the process comprising:

polymerizing propylene and a comonomer selected from C₂ and C₄-C₁₀ in the presence of the product of activator and metallocene compound represented by the formula:



wherein: M is a metal of Group 4, 5, or 6 of the Periodic Table,

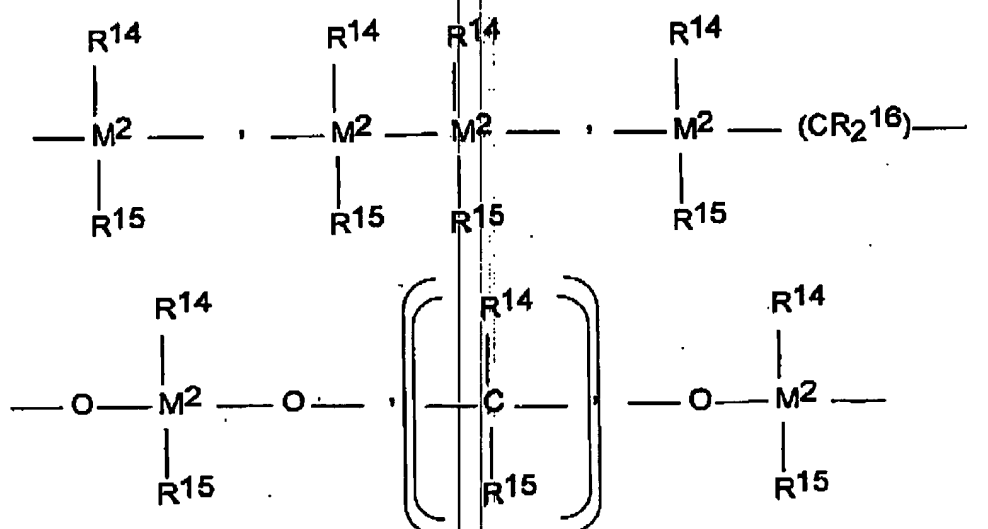
R^1 are identical or different, and are one of a hydrogen atom, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a C₆-C₁₀ aryl group, a C₆-C₁₀ aryloxy group, a C₂-C₁₀ alkenyl

group, a C₇-C₄₀ arylalkyl group, a C₇-C₄₀ alkylaryl group, a C₈-C₄₀ arylalkenyl group, a halogen atom, or a conjugated diene, said conjugated diene substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl or tri(hydrocarbyl)silylhydrocarbyl groups, and said diene having up to 30 atoms not counting hydrogen;

R² are identical or different, and are a hydrogen atom, a halogen atom, a C₁-C₁₀ alkyl group, a halogenated C₁-C₁₀ alkyl group, a C₆-C₁₀ aryl group, a halogenated C₆-C₁₀ aryl group, a C₂-C₁₀ alkenyl group, a C₇-C₄₀ arylalkyl group, a C₈-C₄₀ arylalkenyl group, a -NR₂¹⁷ radical, a -SR¹⁷ radical, a -OR¹⁷ radical, a -OSiR₃¹⁷ radical, or a -PR₂¹⁷ radical, wherein: R¹⁷ is one of a halogen atom, a C₁-C₁₀ alkyl group, or a C₆-C₁₀ aryl group;

R³ are as defined for R¹;

R⁸ is hydrogen or:



wherein: R¹⁴, R¹⁵ and R¹⁶ are identical or different, and are a hydrogen, a halogen, a C₁-C₂₀ branched or linear alkyl group, a C₁-C₂₀ fluoroalkyl, a silylalkyl group, a C₆-C₃₀ aryl group, a C₆-C₃₀ fluoroaryl group, a C₁-C₂₀ alkoxy group, a C₂-C₂₀ alkenyl group, a C₇-C₄₀ arylalkyl group, a C₈-C₄₀ arylalkenyl group, a C₇-C₄₀ alkylaryl group, or R¹⁴ and R¹⁵, together with the atoms binding them, form a cyclic ring;

M² is carbon;

R⁹ and R¹⁰ are identical or different, and have the meanings stated for R¹;

R^4 , R^5 , R^6 and R^7 are identical or different, and have the meanings stated for R^1 provided that at least one of R^4 and R^7 are not hydrogen; and
m and n are identical or different, and are zero, 1 or 2;
wherein the propylene copolymer comprises:

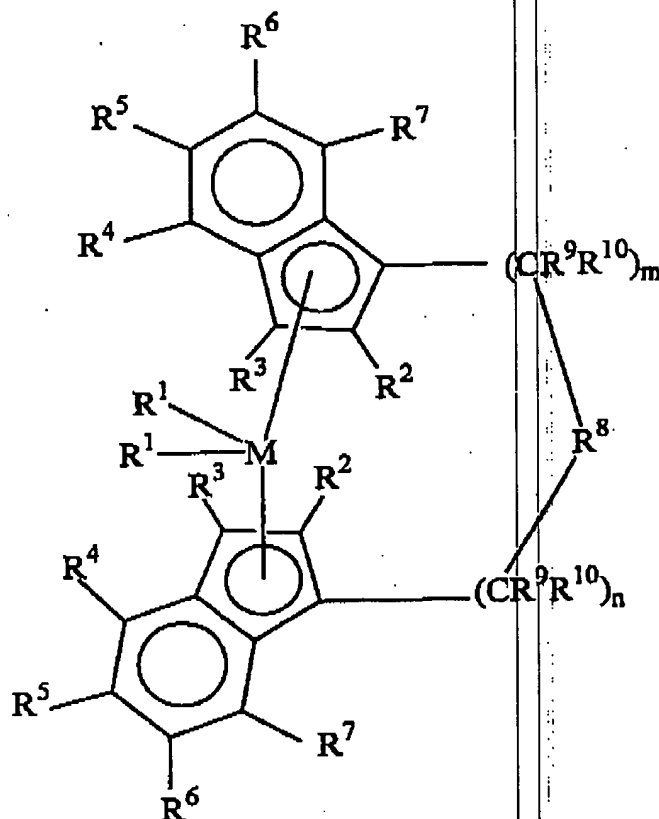
- a) at least 50 wt% units derived from propylene; and
- b) a ratio of two g's as determined by the formula:

$$\frac{g_{88-98}}{g_{20-60}} \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively, and wherein the propylene copolymer has a weight average molecular weight of 20,000 to 1,000,000 g/mol.

2. (original) The process of claim 1 wherein M is zirconium or hafnium, and R^2 are hydrogen.
3. (original) The process of claim 1 wherein M is zirconium or hafnium, and R^2 and R^3 are hydrogen.
4. (original) The process of claim 1 wherein R^{14} , R^{15} and R^{16} are hydrogen or a C_1 - C_4 alkyl group.
5. (original) The process of claim 1 wherein R^8 is hydrogen, and m and n are 1.
6. (original) The process of claim 1 wherein R^5 and R^6 are hydrogen, R^9 and R^{10} are hydrogen, and R^4 and R^7 are identical, and are one of a fluorine, a chlorine, a bromine, a C_1 - C_4 alkyl group, or a C_6 - C_{10} aryl group.
7. (deleted)

8. (original) The process of claim 1 wherein the polymer contains at least 75 weight percent propylene derived units, based on the total weight of the copolymer.
9. (original) The process of claim 1 wherein the metallocene compound is a single species.
10. (original) The process of claim 1 wherein the process is a single step polymerization process conducted in a single reactor.
11. (currently amended) A process for preparing a propylene copolymer composition comprising:
polymerizing propylene and a comonomer of ethylene ~~selected from C₂ and C₄-C₁₀~~ in the presence of a the product of activator and metallocene compound represented by the formula:



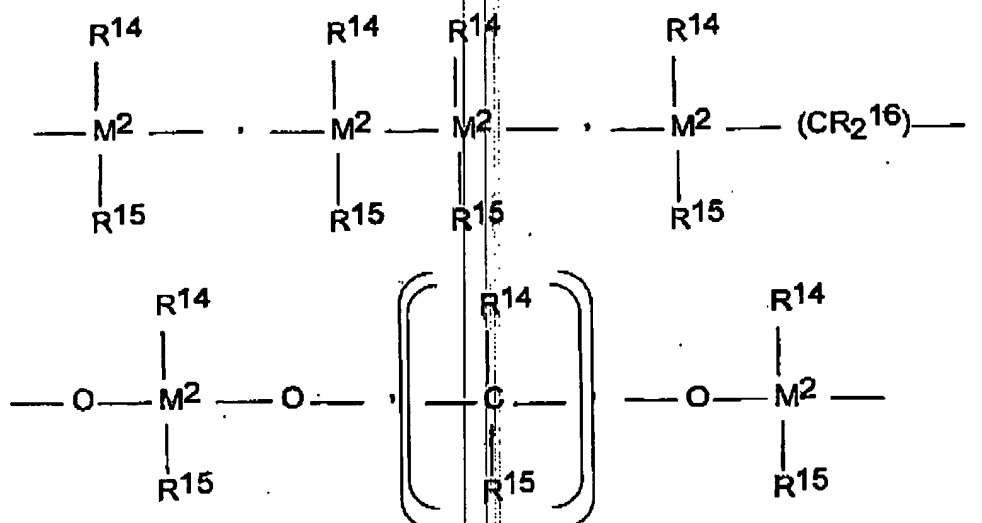
wherein: M is a metal of Group 4, 5, or 6 of the Periodic Table,

R^1 are identical or different, and are one of a hydrogen atom, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a C_6 - C_{10} aryl group, a C_6 - C_{10} aryloxy group, a C_2 - C_{10} alkenyl group, a C_7 - C_{10} arylalkyl group, a C_7 - C_{40} alkylaryl group, a C_8 - C_{40} arylalkenyl group, a halogen atom, or a conjugated diene, said conjugated diene substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl or tri(hydrocarbyl)silylhydrocarbyl groups, and said diene having up to 30 atoms not counting hydrogen;

R^2 are identical or different, and are a hydrogen atom, a halogen atom, a C_1 - C_{10} alkyl group, a halogenated C_1 - C_{10} alkyl group, a C_6 - C_{10} aryl group, a halogenated C_6 - C_{10} aryl group, a C_2 - C_{10} alkenyl group, a C_7 - C_{10} arylalkyl group, a C_8 - C_{40} arylalkenyl group, a $-NR_2^{17}$ radical, a $-SR^{17}$ radical, a $-OR^{17}$ radical, a $-OSiR_3^{17}$ radical, or a $-PR_2^{17}$ radical, wherein: R^{17} is one of a halogen atom, a C_1 - C_{10} alkyl group, or a C_6 - C_{10} aryl group;

R^3 are as defined for R^1 ;

R^8 is hydrogen or:



wherein: R^{14} , R^{15} and R^{16} are identical or different, and are a hydrogen, a halogen, a C_1 - C_{20} branched or linear alkyl group, a C_1 - C_{20} fluoroalkyl, a silylalkyl group, a C_6 - C_{30} aryl group, a C_6 - C_{30} fluoroaryl group, a C_1 - C_{20} alkoxy group, a C_2 - C_{20} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_8 - C_{40} arylalkenyl group, a C_7 - C_{40} alkylaryl group, or R^{14} and R^{15} , together with the atoms binding them, form a cyclic ring;

M^2 is carbon;

R^9 and R^{10} are identical or different, and have the meanings stated for R^1 ;

R^4 , R^5 , R^6 and R^7 are identical or different, and have the meanings stated for R^1 provided that at least one of R^4 and R^7 are not hydrogen; and m and n are identical or different, and are zero, 1 or 2;

wherein the propylene copolymer comprises:

- a) at least 50 wt% units derived from propylene; and
- b) a ratio of two g 's as determined by the formula:

$$\frac{g_{88-98}}{g_{20-60}} \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g ' is the weight average g ' over the

elution range designated 88-98 and 20-60, respectively, and wherein the propylene copolymer has a weight average molecular weight of 20,000 to 1,000,000 g/mol.

12. (original) The process of claim 11 wherein M is zirconium or hafnium and wherein R² are identical or different C₁-C₄ alkyl groups.
13. (original) The process of claim 11 wherein M is zirconium or hafnium, wherein R² are identical C₁-C₄ alkyl groups, and wherein R³ are hydrogen.
14. (original) The process of claim 11 wherein R¹⁴, R¹⁵ and R¹⁶ are identical and are a C₁-C₄ alkyl group.
15. (original) The process of claim 11 wherein R⁸ is hydrogen, and m and n are 1.
16. (original) The process of claim 11 wherein R⁵ and R⁶ are hydrogen, R⁹ and R¹⁰ are hydrogen, and R⁴ and R⁷ are identical and are a fluorine, a chlorine a bromine, a C₁-C₄ alkyl group, or a C₆-C₁₀ aryl group.
17. (deleted)
18. (original) The process of claim 11 wherein the composition contains at least 75 weight percent propylene derived units based on the total weight of the composition.
19. (original) The process of claim 11 wherein the metallocene compound is a single species.
20. (original) The process of claim 11 wherein the process is a single step polymerization process conducted in a single reactor.
21. (original) A propylene copolymer produced by the process of claim 1.

22. (original) A propylene copolymer composition produced by the process of claim 11.

23. (currently amended) The propylene copolymer of claim 21, comprising:

- a) ~~at least 50 wt% units derived from propylene; and~~
- b) ~~a ratio of two g's as determined by the formula:~~

$$\frac{g'_{88-98}}{g'_{20-60}} > 1.10$$

~~where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively, wherein the ratio of two g's is equal to or greater than 1.20.~~

24. (original) The propylene copolymer of claim 23 wherein the ratio of two g's is equal to or greater than 1.30.

25. (original) The propylene copolymer of claim 23 having from 2 wt% to 28 wt% comonomer derived units, based on the total weight of the copolymer.

26. (original) The propylene copolymer of claim 23 having from 2 wt% to 28 wt% ethylene derived units, based on the total weight of the copolymer.

27. (original) The propylene copolymer of claim 23 having from 6 wt% to 28 wt% comonomer derived units, based on the total weight of the copolymer.

28. (original) The propylene copolymer of claim 23 having from 6 wt% to 28 wt% ethylene derived units, based on the total weight of the copolymer.

29. (withdrawn) A propylene copolymer comprising:

- a) at least 50 wt% units derived from propylene, and from 2 wt% to 28 wt% units derived from ethylene, based on the total weight of the copolymer; and
- b) a ratio of two g's as determined by the formula:

$$\frac{g_{88-98}}{g_{20-60}} \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively.

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